AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

1-19. (Canceled)

20. (Currently amended) A system for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising:

a movable unit; and

a fixed unit;

wherein the movable unit is combined with the tyre,

wherein the movable unit comprises:

a device for sensing the at least one characteristic parameter;

a device for transmitting signals out of the tyre;

a processing unit;

a storage device; and

a device for generating electrical energy;

wherein the fixed unit is combinable with the vehicle,

wherein the fixed unit comprises a device for receiving signals from the movable unit,

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device,

wherein the electrical energy generating device is capable of supplying electrical energy to the processing unit and to the transmitting device,

wherein the transmitted signal relates to the at least one characteristic parameter, and

wherein the sensing device, the transmitting device, the processing unit, the storage device and the electrical energy generating device are produced and integrated on the same substrate by micro-electrical-mechanical system (MEMS) technology.

21. (Canceled)

22. (Previously Presented) The system of claim 20, wherein the storage device comprises at least one pre-stored procedure capable of performing the pre-processing of the signal generated by the sensing device.

23. (Previously Presented) The system of claim 20, wherein the signal generated by the sensing device is converted into a digital signal by the processing unit.

24-25. (Canceled)

26. (Previously Presented) The system of claim 20, wherein the electrical energy generating device comprises a capacitor that charges itself with electrical energy in response to mechanical stresses applied to the tyre.

27. (Previously Presented) The system of claim 26, wherein the capacitor comprises:

a fixed plate; and

a movable plate;

wherein the fixed plate and the movable plate move with respect to each other in response to the mechanical stresses.

28. (Previously Presented) The system of claim 27, wherein a distance between the fixed plate and the movable plate can vary in response to the mechanical stresses.

29. (Previously Presented) The system of claim 27, wherein the fixed plate and the movable plate are connected to each other by a pair of springs.

30. (Previously Presented) The system of claim 27, wherein the fixed plate is connected to a fixed support, and

wherein the movable plate is connected to a movable support.

31. (Previously Presented) The system of claim 27, wherein movement of the movable plate is bounded by a pair of end-stop elements.

32-37. (Cancelled)

38. (Currently amended) A movable unit for sensing at least one characteristic parameter of a tyre fitted to a vehicle, comprising:

a device for sensing the at least one characteristic parameter;

a device for transmitting signals out of the tyre;

a processing unit;

a storage device; and

a device for generating electrical energy;

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device,

wherein the electrical energy generating device is capable of supplying electrical energy to the processing unit and to the transmitting device,

wherein the transmitted signal relates to the at least one characteristic parameter, and

wherein the sensing device, the transmitting device, the processing unit, the storage device and the electrical energy generating device are produced and integrated on the same substrate by micro-electrical-mechanical system (MEMS) technology.

39. (Currently amended) A vehicle wheel, comprising:

a tyre;

a supporting rim for the tyre; and

a movable unit combined with the tyre;

wherein the movable unit comprises:

a device for sensing at least one characteristic parameter of the tyre;

a device for transmitting signals out of the tyre;

a processing unit;

a storage device; and

a device for generating electrical energy;

wherein the processing unit and storage device carry out pre-processing of a signal generated by the sensing device and send the pre-processed signal to the transmitting device,

wherein the electrical energy generating device is capable of supplying electrical energy to the processing unit and to the transmitting device,

wherein the transmitted signal relates to the at least one characteristic parameter, and

wherein the sensing device, the transmitting device, the processing unit, the storage device and the electrical energy generating device are produced and integrated on the same substrate by micro-electrical-mechanical system (MEMS) technology.